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## CHILD LABOR IN THE GLASS INDUSTRY

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The glass industry is at once the oldest and the youngest among American manufacturing enterprises. As early as 1609 a glass-house was established in Jamestown, Va., which manufactured the first goods exported from this country. The enterprise was unsuccessful, however, and until the middle of last century glass-making failed to gain a hopeful footing among us. Indeed the year 1865—forty years ago—when Boston was first able to manufacture flint glass equal to the best made in England, may be regarded as the beginning of successful glass manufacture in America. Its present honorable position among domestic manufactures has been attained mainly in the last twenty-five years, while the last decade of the nineteenth century witnessed more radical changes in the industry, both at home and abroad, than had occurred in the preceding three hundred years.

From the installation of the continuous tank in place of the pot system of heating the glass for manipulation, introduced here first at Jeannette, Pa., in 1888, invention and improvement have crowded upon each other in rapid succession until to-day the window glass blowing machine is a proven success, the plate glass industry is revolutionized by labor and fuel-saving devices, the machine for blowing chimneys and wide-mouth bottles is driving the hand blowers to the wall by cheaper and better production, while within the present year machine blowers for small-necked ware have disproven the last contention of the opponents of mechanical progress and bid fair in the near future to monopolize this branch of the art.

In the decade 1890-1900 the capital invested in the industry increased 52.4 per cent to a total of over \$61,000,000, the increase being due largely to the tank system and other forms of more expensive machinery, and to the greater expense in packages for shipping purposes. The largest single item of the \$16,631,000 total ex-

pense in the manufacture of 1900 was \$4,000,000 for packages, metal caps and rubber stoppers, an amount equal to 28 per cent. of the total cost. The production in 1900 was 45 per cent. greater than in 1890, although the average working season, "fire," in 1900 was but six months, as against ten months in 1890, and furthermore, owing to labor and trade difficulties, the possible output in 1900 was reduced by the idleness of 15 per cent. of the factories, representing a capital of \$3,500,000. A study of the trade journals and a field investigation of the industry lead to the belief that the growth, both in number and size of plants, is more rapid since 1900 than before.

No modern industry, with the possible exception of silk-throwing and cotton manufacture, makes a stronger demand for child labor than the manufacture of glass. At the side of the blower and gatherer, in the blistering heat of the furnace, stands the little "cracker-off" boy who breaks the cooling waxlike glass from the end of the blowpipe after the chimney or bottle has been left in the mold; sitting at the feet of the blower is the "holding-mold" boy who opens and shuts the molds; then the "sticker-up" or "warming-in" boy takes the ware from the mold and holds it to the "glory-hole," re-heating the mouth that it may be shaped by the gaffer, or finisher; from the finisher the "carry-in" boy takes the ware to the lehr, where it is properly tempered and made ready for packing. The other forms of child labor in some factories—etching, polishing, tying, packing, are unimportant as compared with those mentioned.

The employment of children at night is possibly the crowning offense of the glass industry, as viewed by those who oppose injurious child labor. The introduction of the tank system, making profitable the continuous operation of the plant, marks a decided step in the progress of the industry, but it has largely increased the demand for boys at night work until probably 60 per cent. of the 7,500 boys employed in glass-houses work at night every other week. The evil of night labor is intensified by the abnormal temperature of the factory: and this from both the physical and the moral standpoints. The boy is in close contact with men who labor at a kind of work requiring quickness, precision, nervous strain, and who in the excitement of the moment are often forgetful of the moralities of conduct so essential to the formation of a boy's character. One hesitates to state what might be construed as a criticism of any group

of America's working people by whose energy and intelligence the foundations of our national prosperity have been laid. Yet it is a common observation that the character of men is often greatly affected by the nature of their employment: profanity and intemperance being peculiarly prevalent in industries demanding unusual risks to life or limb, or requiring labor in an abnormal atmosphere. It is believed that a better spirit is developing among glass-house operatives, partly due no doubt to the educational value of the trade union movement. Yet much remains to be desired. Many glass factories are sorely crippled following every pay day or holiday, owing to the intemperance of some of the men and their incapacity for careful work. The introduction of such devices as reduce the exposure of the men to excessive heat will do more than any form of temperance agitation to lessen the abnormal craving for stimulant which their overtaxed bodies now express.

The work in a glass-house is usually by the piece, and during the rush hours of a "turn," when all is excitement and hurry, the visitor will shudder to hear a burly man curse his little helper in language bound to leave its dark impress on his plastic mind and color his imagination with stains that cannot be effaced. It is significant that in many glass-houses one hardly finds the child of a glass-blower. One worker who has spent his life in the glass-house when asked the reason replied: "I would rather send my boys straight to hell than send them by way of the glass-house." A young friend, whose character and family are well known, said recently that of the 175 boys with whom he worked in an Indiana factory two years ago there were only ten at the end of the fire who were not confirmed drinkers of intoxicants. And the proprietor of a successful Ohio house said last summer, in reply to an appeal for the education of the boys: "You can't do anything for them. The little devils are vicious from their birth." A somewhat intimate acquaintance with the glass-house boys of this and other communities left no doubt as to the viciousness of many, though the date of its genesis was not established. One inclines, however, to the opinion of a discerning school principal in a thriving glass town in Pennsylvania, who says: "My observation is that when a boy leaves school and goes into the factory at twelve or thirteen, by the time he is fifteen or sixteen he is too foul-mouthed to associate with decent

people." The injurious moral effects of the industry on little boys are further proven by the statement of another leading Ohio glass manufacturer who urged the advantage of securing boys from eleven to thirteen years of age by saying: "When a boy gets to be sixteen or seventeen years old he becomes lazy and heady and will not work as he used to." When asked whether the factory life itself had anything to do with this state of moral fatigue, he replied that there was no way of comparing because "a boy rarely ever goes into the glass-house after he reaches sixteen or seventeen years."

The menace to the physical well-being of the child is not less. Irregular hours of labor and rest are undermining to the mature constitution. How much more to the undeveloped, rapidly growing boy. And when this irregular employment is pursued in an excessive heat which first stimulates and then stupefies, sending the boy home at 2.30 or 4.30 in the morning through the raw, damp night, the evil is intensified. Many mothers corroborate the criticism of one expressed in these words: "When Charley works on the night shift he hasn't any appetite," although there are manufacturers who contend that the boys get more rest and are better in health when on the night shift than when on the day.

The National Child Labor Committee proposes legislation which shall forbid the employment of any boy under fourteen years of age in a glass-house, and restrict night employment to those over sixteen. Two objections are advanced, by some representatives of the industry, to such legislation. The first objection is that glass cannot be manufactured without the aid of small boys. It is contended that the efficiency of the "shop" (the group working at a single furnace) depends on the presence of the boys; that they are used for forms of work which men either will not or cannot do, because they labor at wages adequate for boy's work, but too small to induce men to work. One manufacturer a year ago contended that several of the best houses in Pennsylvania would be compelled to close if the age limit for children were raised from thirteen to fourteen years.

It is interesting to see that this despairing prophecy has not been fulfilled, but that, on the other hand, the industry has substantially increased in Pennsylvania since the enactment of that law, and, so far as discovered, no inconvenience of importance has any-

where been suffered. A study of the industry in recent years will prove the groundlessness of such fears, and will demonstrate that the manufacture of glass is so firmly established in America that no restrictive legislation contemplated by any intelligent body of citizens for child protection could materially check its growth.

That glass manufacture does not depend on child labor is shown by the fact that during the decade 1890-1900, while the number of factories increased 20 per cent., the capital invested 52 per cent., the number of employees 17 per cent., and the output 45 per cent., the number of children employed increased but 2.5 per cent. In the pressed and blown glass branch of the industry, in which children are employed—practically none being engaged in the building or pressed glass industry—the increase is no less striking. In the number of factories the increase was 19 per cent., in capital invested 54 per cent., in number of wage-earners 24 per cent., in children 5.6 per cent.

The location of the glass industry is even more interesting than these general statistics. The manufacture of fruit-jars, bottles of all kinds, and lamp chimneys has moved steadily westward during the past fifteen years from Pennsylvania, Maryland, West Virginia and New Jersey, where child labor laws were lax and restriction of night labor almost unknown, into Ohio, Indiana and Illinois, States in which laws have been enacted increasingly restrictive, and in two of which night work under sixteen years of age is prohibited. In the census of 1880 Indiana did not report the manufacture of fruit jars; in 1890 it manufactured 31 per cent. of the total output, and in 1900 the percentage had increased to 70. In 1880 Pennsylvania manufactured nearly two-thirds of all our lamp chimneys. In 1890 Ohio stood first, manufacturing twice as many as Pennsylvania, and in 1900 Indiana had attained first place, manufacturing 45 per cent. of the total, followed by Pennsylvania with 26 per cent., and Ohio with 21 per cent. This does not mean that the manufacture has declined in these eastern States, but only that the growth in other States has far outstripped them. One of the largest and possibly the most successful among the bottle manufacturing houses is now located in Ohio, and a leading official of the plant explained the entire absence of boys on the night shift by the statement that "the reason shops find it necessary to hire boy labor for night work is

because they do not want to hire men." When asked whether the demand for cheap labor was essential, he replied: "They can all afford to employ men and boys over sixteen. It is simply greed." An outsider would hesitate to make so sweeping a charge, but the statement of one in the business may be quoted without offense.

The decade 1890-1900 shows both Indiana and Illinois leading Pennsylvania in the manufacture of glass bottles, though the latter State permitted child labor at ages and hours forbidden in both the others.

The position of the glass industry in the world markets is no less encouraging to the cause we represent. Between the years 1890-1900 French mirror glass imports decreased 95 per cent., imported polished plate of all kinds decreased 79.8 per cent., fluted rolled and rough plate imports decreased 90 per cent., being nearly equalled in the latter year by the exports of a single American skylight factory, while the imports of all bottles, jars, carboys, etc., the branch of the trade especially employing children, decreased 49 per cent. In the same period the exports of "all other glass" except window glass increased 117.4 per cent.

The location of a glass-house is determined chiefly by cheapness of fuel, the largest single item of expense in manufacturing. The utilization of natural gas has caused it to follow closely the opening up of the natural gas belt, in the Pittsburgh district, along the Ohio River, through Ohio, Indiana, and Illinois. Kansas, which reports no glass-houses in the census of 1900, to-day has not less than twenty in successful operation. The industry in the future will probably be less nomadic than formerly, owing to the greater expense of construction and to the recently proven success and economy of gas produced from crude oil—one firm recently reporting the operation of a plant by the use of crude oil gas, produced at the rate of 6,000 cubic feet of gas per barrel of oil, and at a cost of 7 cents per thousand feet.

The second consideration in determining location is market. Freight rates on glass are unusually high, and often the discrimination against those shipping between certain points is almost oppressive. The annual consumption of glass fruit jars is not less than 700,000 gross, while one lamp chimney factory manufactures thirty tons of glass a day at one of its plants and forty tons at another.

The superintendent of a large tumbler house in Pennsylvania affirms that the freight rate from his city to St. Louis is greater than the rate charged from Germany to St. Louis on the same class of ware. It is evident that the industry is far more sensitive to these market and freight conditions than almost any other extensive industry in the country, and the rapid increase in the use of bottles, table-ware, lamp chimneys and fruit jars throughout the West has combined with the oil and gas fields in winning the industry to the Western States.

The principal ingredients in the manufacture of glass have greatly decreased in cost within recent years, the total cost of soda-ash having fallen 27 per cent. during the decade 1890-1900, although the total consumption increased 63 per cent. Sand is found in so many sections of the country as to be in reach of all States manufacturing glass, while salt-cake, lime and limestone, nitrate of soda, arsenic and other ingredients do not enter into the question of location.

The third influence is the cost and availability of labor. As the silk industry is rushing into the mining region where girl labor is to be had in plenty and at small cost, so the glass industry tends to follow those heavier industries in which boys are not available, and to bid for the child life of those industrial communities. It is not denied that labor legislation restricting the employment of children has a certain influence at this point. It is only claimed that the other items of cost are of so much greater importance that a successful glass-house is not materially affected by such legislation as has been proposed by this committee.

Indeed, it is gratifying to learn from several of the most successful manufacturers that their desire to employ children in the industry is more from consideration for the boys and their needy families than because of the needs of the industry. And we may here appropriately introduce the second general objection to child labor legislation. It is well expressed in the words of an influential editor who said: "The objection to child labor legislation is more on account of the little fellows who would be deprived of the work than on account of the industry." The refuge of those compelled to acknowledge that the industry can grow and thrive without the labor of little children, but who still defend the custom, is in the

plea either that the children are better off in the factory than on the street; that they belong to the class had in mind by a prominent citizen who recently said: "If you educate all the people, who will do the dirty work, the hard manual labor?" or that the poor widow with the large family will be thrown upon public charity if the boy is taken from the factory.

To the first form of the objection it is only necessary to answer that the truth of the statement depends upon the nature of the factory and the condition of the street, and that the spirit of America has in mind educational provision for all children, who should be protected from both factory and street. If any child is reduced to either of these alternatives then a radical defect is to be unearthed in the life of that community and correction of the mal-condition should begin without delay.

To the second form of the objection the only answer in harmony with the ethics of democracy is that the division of society into two classes, one of which shall be educated and enjoy life, and the other be kept in ignorance and confined to "dirty work" and denied education for fear of arousing discontent, has been the curse of former civilizations—cursing both the servants and the served—and has no place in a society that lives by the participation of its citizens in its civic and political affairs.

The third form of the objection must be considered more seriously. No doubt many families are, in certain periods, kept from dire want through the meagre earnings of little children. No doubt also that if society is to compel the education of the children and their exclusion from injurious labor—both in the interest of the public welfare—society must also take the necessary steps to execute these laws without imposing undue hardship on those persons in greatest need of sympathy and social equity. It is impossible in this place to enter upon a defense of the position that every widow who seeks to rear and educate a family of children should be regarded as so clearly a contributor to the public wealth that her honorable maintenance shall be guaranteed as a matter of justice, not of charity. We must here confine ourselves to the discussion of the place of the child in the problem and the necessity of his elimination as a factor in domestic support.

It is granted that the wages of a small boy in a glass-house  
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will bring a pittance into the family treasury: it does not follow that the general condition of poverty in the community is therefore at all relieved. A stogie roller may earn \$5 or \$6 a week, or an expert who can roll 2500 a day may earn \$12 a week in a tenement where vice and fever propagate together: it does not follow that stogie rolling is a blessing to the poor. On the other hand the average stogie roller grows poorer every year, and the influx of poverty, drawn by this and other forms of industry which bring quick returns without investment of capital or skill, fills the regions promoting them with an ever-increasing number of hungry mouths to the bewilderment, almost the despair, of philanthropic agencies. Great industries bring in their train the small merchant and the peddler, the cheap garment worker, and the stogie roller, who live often in abject poverty and work in cramped tenements of unventilated filth.

But it is interesting to note that only those industries that can profitably employ the ignorant, the weak, the children of the poor, are to any degree concerned in the protection of the poor widow and her offspring. The building trades have cost the lives of many toilers and left many poor widows and defenseless children, but one does not hear the boss carpenter or the employer of structural iron workers defending the employment of children on the basis of philanthropy. Neither the steel mills, the lumber camps, the manufactories of locomotives, or the great railroads seem sensitive—as industries—to the cry of the children in need of work. Only where the little child can be worked at a profit are men found solicitous for the welfare of the children who will be idle unless employed by them.

We have too long permitted the employer of children to feel that he holds a special guardianship over the widows of the commonwealth. We do not question his motives, for he sees the problem in the concrete rather than in its broad implications, and the customs of his industry have inevitably forced him to face conditions in the community which have brought him to his viewpoint. But it is the duty of the public to learn, and then to teach, that the cotton manufacturer, the silk manufacturer, the cigar manufacturer, the proprietor of a newspaper or telegraph office, the manufacturer of glass or the president of a coal mining company is no more responsible to relieve the poverty of the community through the employ-

ment of its little children than is the railroad manager, the building contractor, the steel manufacturer, the employer of 'longshoremen, the lumber dealer or the manufacturer of locomotives. Let each industry stand on its economic basis and let us remember that poverty is never eliminated by being congested, and that poor widowhood is not permanently relieved by such industries as bid for cheap labor and thus beckon the inefficient and needy to hover about them.

We contend then that the glass industry is not compelled to employ little children, either for the benefit of the children nor from necessities of the industry. The editor of the *National Glass Budget*, in the issue of November 25, 1905, echoes the sentiment of many prominent manufacturers in asserting that the introduction of modern machinery and automatic devices has "changed modern factory requirements to such an extent that it can truthfully be said that, as a rule, the glass factory of to-day which still requires the work of the small boy is operated in the crudest, most primitive, most expensive and antiquated manner." The auditor of one of the largest glass manufacturing concerns in America, a company which does not employ any child labor, said recently: "Flint glass manufacture has followed at the tail end of the procession. When you consider the ease with which steel and iron are handled in the great factories, and then watch the little boys carrying hot glass in the bottle houses, it looks extremely crude. There is a whole lot of this work which could be as well done by machinery." One of the owners of an extensive lamp chimney factory, operated now almost entirely by blowing machinery, estimates that they employ about one-half the number of boys formerly employed for the same amount of work; that whereas they formerly employed boys of twelve or fourteen years who earned \$6 a week, they can now employ young men over sixteen years old whose earnings are from \$14 to \$20 a week. When asked if the net cost was not greater now than formerly his answer was, "We can now afford to pay men's wages for boy's work."

It is not, of course, suggested that child labor is no longer profitable in the making of glass. Many factories would be temporarily inconvenienced by being compelled to employ older boys for the work now done at trifling cost by young children. It is only con-

tended that the industry, as such, will not be injuriously affected by such restrictive legislation, but on the other hand will be stimulated to greater economies and improvements than will be utilized while human life can be purchased at so slight a cost. But even were the industry itself imperilled, society cannot be interested in the maintenance of industries which must exist at the sacrifice of child life. One enterprising employer, when objecting to the enforcement of child labor laws, complained that such legislation would ultimately force them to install machinery that would do away with the necessity for small boys.

That any inconvenience to the industry from such legislation as we urge might be avoided by a more equitable distribution of wages has frequently been pointed out to both employers and employees in the course of this investigation. Few skilled trades pay better wages than glass blowing, and while the hand work is to-day made precarious by the rapid introduction of machinery, and many glass blowers see their trade vanishing, it is also true that the workers on the new machines are paid wages that are large as compared with wages in other forms of manual labor. When one suggests that glass blowers and finishers might be willing to have their wages slightly reduced with the understanding that the difference shall be made up to older helpers taking the places of the small boys, the suggestion is always laughed out of court—whether made to proprietor or workmen. To watch men working for \$4 to \$10 a day, aided by little boys who earn from 65 cents to \$1.10 a day for "boys' work," although working the same number of hours and subjected to the same intense heat, whether in union or non-union shops, forces the doubt whether labor is always entirely serious in its protest against the employment of little children. It is not to be understood that such a policy of wage reduction for skilled labor is here advocated. It is probable that, under present industrial conditions in which labor stands always offering itself for sale in the open market, wages are rarely if ever higher than the service warrants. It is only suggested that, with child labor in the glass industry standing a confessed menace to society—a fact well known by employer and employee alike—and with a disparity in wages between the skilled man and the boy which appears unjustified by the amount of service rendered, some amicable adjustment should be reached

between the rival forces that would put an end to the sacrifice of the child in the interest of either party. The responsibility will be revealed by proper legislation. If only the greed of the manufacturer deters him from paying wages adequate to reward men and larger boys, self-interest will force him to this when little children can no longer be employed. But if the total amount paid in wages is all that the industry warrants, and the wages of skilled workers are out of all proportion to those paid the children, then the genuineness of labor's protest will be put to the test. We do not here profess to know whether the sacrifice should be made by the employer or the employee. Regardless of the effect on prices, or wages, or the fortunes of particular plants, or the struggle between the hand-working and the machine operating factories, or the strife which exists to-day between the union and the open shops—the public is interested only to see that glass—that most wonderful and beautiful of our manufactured products, the symbol and conveyer of light, the highest instrument in the hands of sanitary science and the healing art—shall be made without bearing beneath its polished surface the lives of little children who have been burned into its glittering substance.